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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,574	05/14/2004	Paul A. Manfredi	BUR920030148USI	3573
21918. 7590 05/18/2007 DOWNS RACHLIN MARTIN PLLC 199 MAIN STREET P O BOX 190 BURLINGTON, VT 05402-0190			EXAMINER KARLS, SHAY LYNN	
			ART UNIT 1744	PAPER NUMBER
			MAIL DATE 05/18/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/709,574

Applicant(s)

MANFREDI, PAUL A.

Examiner

Shay L. Karls

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 8,9,15,16 and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7,10-14,17-19 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 May 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date. _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

This application contains claims 8-9, 15-16, 20 drawn to an invention nonelected with traverse in the reply filed on 11/13/06. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 2-7, 10-14, 17-19, 21 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. These claims include the limitation of a "microelectronics wafer". This terminology is not supported in the specification or in the drawings. The specification only discloses a "wafer" and makes no mention of a "microelectronics wafer". Since the application has no support for a "microelectronics wafer" it is considered to new matter and must be removed from the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 6 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Kitamura et al. (USPN 5508879).

Kitamura teaches an apparatus for removing contaminants from a surface. The apparatus comprises a wafer cleaning region configured to receive a wafer during cleaning (320 is capable of receiving a wafer). The apparatus further comprises a rotating wafer-cleaning member (1) designed to remove contaminants from a surface of the wafer. There is further an electrically grounded path (element 2 and col. 4, lines 1-13) extending from the wafer to ground when the apparatus is connected to an electrical ground (col. 2, lines 34-37). While the claims states that the apparatus is used to clean a microelectronics wafer this is a recitation of the intended use of the claimed invention and the recitation must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Thus since the device of Kitamura teaches the structure that is capable of cleaning a wafer, it meets the claim.

With regards to claim 6, the brush roller is part of the electrically conductive path (col. 3, lines 58-64).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 2-3, 6, 10-14, 17-19, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hawn (IBM Disclosure Bulletin) in view of Kitamura ('879).

Hawn teaches an apparatus for removing contaminants from a surface. The reference teaches that the electrostatic charges are removed from dielectric surface and it is well known in the art that wafers comprise dielectric surface and therefore, it is clear that the apparatus is capable of being used to clean wafers. The apparatus comprises a wafer-cleaning region (not discussed however it is inherent that the wafer needs to be supported by an element when being discharged) configured to receive a wafer during cleaning. The apparatus further comprises a wafer-cleaning member (line 3, conductive brush) designed to remove contaminants from a surface of the wafer (when contacting the wafer it will remove contaminants from the surface).

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There is further an electrically grounded path (lines 30-8) extending from the wafer to ground when the apparatus is connected to an electrical ground.

With regards to claim 2, the cleaning member is a brush having a non-filamentous surface (line 3 states that the brush can be magnetic which would be non-filamentous and would remove metal contaminants from the surface).

With regards to claim 3, the brush comprises an electrically conductive material (line 3).

With regards to claim 6, the cleaning member is part of the electrically conductive path (lines 3-4; lines 6-8).

With regards to claim 10, the method of removing contaminants from a surface of a wafer (dielectric surfaces are located on wafer and therefore the device is capable of cleaning wafers) that may have a static electrical charge comprises the steps of cleaning the surface with a cleaning member (line 3, conductive brush), contacting the wafer with a conductive member connected to an electrical ground (lines 3-4).

With regards to claim 11, the method further includes that the cleaning member is electrically conductive and the cleaning member contacts the wafer (lines 3-4, lines 6-8).

With regards to claim 12, the brush contacts the surface of the cleaning member (lines 3-4).

With regards to claim 13, the cleaning member brushes the surface (lines 3-6).

With regards to claim 14, the method further comprises contacting the surface with an electrically conductive brush having a non-filamentous cleaning surface (line 3 states that the brush can be magnetic which would be non-filamentous and would remove metal contaminants from the surface).

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With regards to claim 17, there is a system for removing contaminants from a surface of a wafer (dielectric surfaces are located on wafer and therefore the device is capable of cleaning wafers) comprising a wafer-cleaning region (not discussed however it is inherent that the wafer needs to be supported by an element when being discharged) configured to receive a wafer during cleaning. There is additionally a cleaning member configured to remove contaminants from the surface (lines 3-4, conductive brush), an electrical ground (line 3), and an electrically conductive path extending from the article to the ground (lines 3-4).

With regards to claim 18, the cleaning member further comprises a non-filamentous cleaning surface (line 3 states that the brush can be magnetic which would be non-filamentous and would remove metal contaminants from the surface).

With regards to claim 19, the cleaning member is part of the electrically conductive path (lines 3-4; lines 6-8).

Hawn teaches all the essential elements of the claimed invention as stated above, however fails to teach using a rotating cleaning member to clean a wafer. It appears that the brush of Hawn is stationary. Kitamura teaches a rotating charge removal brush used to remove charges from a photoreceptor. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the stationary brush of Hawn with a rotating brush as taught by Kitamura because a rotating brush will assist in rotating the wafer which allows for better cleaning and charge removal since the surface of the wafer will contact the brush multiple times during use.

Claims 2-3, 6-7, 10-14, 17-19, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bahten (USPN 6182323) in view of Hawn (IBM Disclosure Bulletin).

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Bahten teaches an apparatus for removing contaminants from a surface of a wafer. The apparatus comprises a wafer-cleaning region (figure 4) configured to receive a wafer during cleaning. The apparatus further comprises a wafer-cleaning member (402-405) designed to remove contaminants from a surface of the wafer (abstract).

With regards to claim 2, the cleaning member is a brush having a non-filamentous surface (made from foam).

With regards to claim 3, the brush comprises an electrically conductive material (foam is conductive).

With regards to claim 7, the brush roller is made from foam cleaning portion (abstract).

With regards to claim 10, the method of removing contaminants from a surface of a wafer comprises the steps of cleaning the surface with a cleaning member (402-405).

With regards to claim 11, the method further includes that the cleaning member is electrically conductive (made from foam) and the cleaning member contacts the wafer (figure 4).

With regards to claim 12, the brush contacts the surface of the cleaning member (figure 4).

With regards to claim 13, the cleaning member brushes the surface (abstract, figure 4).

With regards to claim 14, the method further comprises contacting the surface with an electrically conductive brush having a non-filamentous cleaning surface (made from foam).

With regards to claim 17, there is a system for removing contaminants from a surface of a wafer comprising a wafer-cleaning region (figure 4) configured to receive a wafer during cleaning. There is additionally a cleaning member configured to remove contaminants from the surface (402-405).

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With regards to claim 18, the cleaning member further comprises a non-filamentous cleaning surface (made from foam).

Bahten teaches all the essential elements of the claimed invention however fails to teach electrically grounding the apparatus (claim 6, 10, 17, 19, 21). Hawn teaches a means for discharging unwanted potentials on dielectric surface. The references teaches grounding a conductive brush which contacts the dielectric surface. It would have been obvious to one of ordinary skill in the art at the time the invention was made to electrically ground Bahten's brush which is made from an electrically conductive foam as taught by Hawn. Grounding the brush will allow the brush to remove unwanted electrostatic charges the wafer without damaging the wafer.

Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bahten (USPN 6182323) in view of Hawn (IBM Disclosure Bulletin) as applied to claim 3 above and further in view of Kitamura ('879).

Bahten in view of Hawn teach all the essential elements of the claimed invention however fail to teach that the brush comprises a polymer filled with an electrically-conductive material. Kitamura teaches a roller having fibers filled with an electrically conductive material (col. 5, lines 27-31 state that the fibers of the roller are made from polypropylene nylon or polyester filled with a conductive material such as carbon). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the brush of Bahten so that the foam is filled with a conductive material such as carbon as taught by Kitamura so that the brush will be capable of effectively removing charges from surface of the wafer and so that the brush will provide an efficient cleaning operation (col. 5, lines 36-42).

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Additionally, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use perfluoralkoxyalkane as the polymer for the brush, since it has been held within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious engineering choice. *In re Leshin*, 125 USPQ 416.

Response to Arguments

Applicant's arguments with respect to claims 2-7, 10-14, 17-19 and 21 have been considered but are moot in view of the new ground(s) of rejection.

The applicant amended the claims to include the limitations that the cleaning member is rotatable and that the device being cleaned is a wafer.

Claim 21 states that the apparatus is used for cleaning a microelectronics wafer. This is considered to be a recitation of the intended use of the claimed invention and it must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Thus, Kitamura is clearly capable of being used to clean a wafer since it has the same structure as claimed.

The applicant argues that Hawn is silent as to cleaning of contaminants from the wafer. The Examiner would like to point out that the brush of Hawn can be magnetic and therefore it would remove any metal contaminants that are present on the wafer. The applicant does not clarify the type of contaminants that are to be removed and therefore any elements that are on the surface of the wafer that are being removed by the brush can be considered contaminants. Thus, the electrostatic charge can also be considered a contaminant.

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The applicant states that Kitamura fails to teach a wafer-cleaning region. As stated above, claim 21 only states that the device needed to be capable of cleaning a wafer and therefore, the wafer is capable of being positioned on the belt (320) when having the charge removed. The wafer-cleaning region is thus considered to be the point at which the wafer contacts the brush.

Regarding claim 5, even though Kitamura teaches using carbon in a fibrous brush, it is obvious to use carbon in a non-fibrous brush to achieve the same effects of removing unwanted charges and assisting in cleaning of the wafer.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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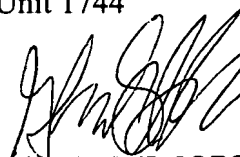
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shay L. Karls whose telephone number is 571-272-1268. The examiner can normally be reached on 7:00-4:30 M-Th, alternating F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gladys Corcoran can be reached on 571-272-1214. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Shay L Karls
Patent Examiner
Art Unit 1744



GLADYS JP CORCORAN
SUPERVISORY PATENT EXAMINER